

# Plan for Analyzing and Testing Hypotheses (PATH)

## **Retrospective and Prospective Analyses of Spring/Summer Chinook Reviewed in FY 1997**

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## **Section 1**

### **Introduction**

## Section 1. Introduction

The Plan for Analyzing and Testing Hypotheses (PATH) is a formal and rigorous program of formulating and testing hypotheses. It is intended to identify, address and (to the maximum extent possible) resolve uncertainties in the fundamental biological issues surrounding recovery of endangered spring/summer chinook, fall chinook, and steelhead stocks in the Columbia River Basin. This process grew out of previous efforts by various power regulatory and fisheries agencies to compare and improve the models used to evaluate management options intended to enhance recovery of these stocks.

The objectives of PATH are to:

1. Determine the overall level of support for key alternative hypotheses from existing information (**retrospective or “backward-looking” analyses**), and propose other hypotheses and/or model improvements that are more consistent with these data;
2. Assess the ability to distinguish among competing hypotheses from future information, and advise institutions on research, monitoring and adaptive management experiments that would maximize learning; and
3. Advise regulatory agencies on management actions to restore endangered salmon stocks to self-sustaining levels of abundance (based on **prospective or “forward-looking” analyses**).

The purpose of this report is to compile the retrospective and prospective analyses of Spring/Summer Chinook populations that were completed and reviewed by the Scientific Review Panel (SRP) in Fiscal Year 1997. Reviews by the SRP are included immediately following each document.

Retrospective Analyses completed in FY97, along with their SRP reviews, are compiled in Section 2. These documents explore the influence of various factors, such as climate and land-use, on observed historical trends in stock production. The retrospective analyses completed in FY97 were follow-up analyses to work that was completed and reviewed in FY96, and published in the PATH Final Report on Retrospective Analyses for Fiscal Year 1996 (Marmorek 1996). Major conclusions from the FY96 analyses were published in a separate Conclusions Document (Marmorek and Peters 1996). We encourage you to read these earlier documents for additional background information on the FY97 analyses presented in this report.

Section 3 contains several documents on the prospective modeling and decision analyses tools used by PATH to project the outcomes of alternative actions. These documents were produced early in the development of the prospective analyses for spring/summer chinook, and represent PATH's original exploratory ideas about the structure and purpose of our prospective tools. Many of these ideas were eventually incorporated into the PATH preliminary decision analysis. This analysis is described fully in the PATH Preliminary Decision Analysis Report for Snake River Spring/Summer Chinook (Marmorek and Peters 1998), which was published in March 1998.

Finally, section 4 contains some general comments on PATH by Carl Walters, one of the members of the Scientific Review Panel. Because of time commitments, Dr. Walters was unable to provide specific comments on all of the reports compiled here. However, he did provide some useful general comments on the overall PATH approach, which are reproduced here.

**References:**

Marmorek, D.R. (ed.) and 21 co-authors. 1996. Plan for Analyzing and Testing Hypotheses (PATH). Final Report on Retrospective Analyses for Fiscal Year 1996. Compiled and edited by ESSA Technologies Ltd., Vancouver, B.C. (Available from Bonneville Power Administration).

Marmorek, D.R. and C.N. Peters (eds.), and 24 co-authors. 1996. PATH – Plan for Analyzing and Testing Hypotheses. Conclusions of FY96 Retrospective Analyses. Compiled and edited by ESSA Technologies Ltd., Vancouver B.C. 28 pp.

Marmorek, D.R. and C.N. Peters (eds.) 1998. Plan for Analyzing and Testing Hypotheses (PATH): Preliminary Decision Analysis Report on Snake River Spring/Summer Chinook. Draft report compiled and edited by ESSA Technologies Ltd., Vancouver, B.C. 92 pp. and appendices.